

CALIFORNIA BUILDING STANDARDS COMMISSION
October 19, 2023
CALGREEN EV WORKSHOP
Agenda Item 4d

DRAFT EXPRESS TERMS
CALIFORNIA GREEN BUILDING STANDARDS CODE,
(CALGreen), PART 11,
CALIFORNIA BUILDING STANDARDS CODE,
TITLE 24, CALIFORNIA CODE OF REGULATIONS

If using assistive technology, please adjust your settings to recognize underline, strikeout and ellipsis.

LEGEND for EXPRESS TERMS

- Existing amendments appear upright
- Amendments appear underlined
- Repealed California language appears upright and in strikeout

SECTION 5.106, SITE DEVELOPMENT

AGENDA ITEM 4d

RATIONALE: BSC-CG is proposing to add two new code Sections 5.106.5.3.2.4.1 and 5.106.5.3.6.3 for Raceway Capacity Requirements. The proposal would allow for future proofing of existing low power level 2 receptacles with 208/240-volt 20 ampere branch circuits to be easily upgraded to a level 2 receptacles. This allows for future upgrades to the electrical conductors serving low power Level 2 charging receptacles, a listed raceway shall be provided with the capability of accommodating a dedicated 208/240-volt 40-ampere branch circuit. This proposed amendment will align with HCD's current voluntary proposal during the 2024 Triennial Code Adoption Cycle found in code Section A4.106.8.2 New multifamily dwellings. While HCDs proposal is voluntary BSC is proposing it as mandatory. This proposed change also maintains consistency for both residential and nonresidential occupancies and provides clarity for the code users and the regulated community.

[changes are shown in underline and/or strike-out for all code sections below]

Section 5.106 SITE DEVELOPMENT, Section 5.106.5.3

5.106.5.3 Electric vehicle (EV) charging. [N] [BSC-CG] Construction to provide electric vehicle infrastructure and facilitate electric vehicle charging shall comply with Section 5.106.5.3.1 EV capable spaces, Section 5.106.5.3.2 Electric vehicle charging stations and associated Table 5.106.5.3.1, or Section 5.106.5.3.6 Electric vehicle charging stations (EVCS)-Power allocation method and associated Table 5.106.5.3.6 and shall be provided in accordance with regulations in the *California Building Code* and the *California Electrical Code*.

Exceptions:

1. On a case-by-case basis where the local enforcing agency has determined compliance with this section is not feasible based upon one of the following conditions:
 - a. Where there is no local utility power supply.
 - b. Where the local utility is unable to supply adequate power.
 - c. Where there is evidence suitable to the local enforcement agency substantiating that additional local utility infrastructure design requirements, directly related to the implementation of Section 5.106.5.3, may adversely impact the construction cost of the project.
2. Parking spaces accessible only by automated mechanical car parking systems are not required to comply with this code section.

5.106.5.3.1 EV capable spaces. [N] EV capable spaces shall be provided in accordance with Table 5.106.5.3.1 and the following requirements:

1. Raceways complying with the *California Electrical Code* and no less than 1-inch (25 mm) diameter shall be provided and shall originate at a service panel or a subpanel(s) serving the area, and shall terminate in close proximity to the proposed location of the EV capable space and into a suitable listed cabinet, box, enclosure or equivalent. A common raceway may be used to serve multiple EV capable spaces.
2. A service panel or subpanel(s) shall be provided with panel space and electrical load capacity for a dedicated 208/240 volt, 40-ampere minimum branch circuit for each EV capable space, with delivery of 30-ampere minimum to an installed EVSE at each EVCS.
3. The electrical system and any on-site distribution transformers shall have sufficient capacity to supply full rated amperage at each EV capable space.
4. The service panel or subpanel circuit directory shall identify the reserved overcurrent protective device space(s) as "EV CAPABLE". The raceway termination location shall be permanently and visibly marked as "EV CAPABLE."

Note: A parking space served by electric vehicle supply equipment or designed as a future EV charging space shall count as at least one standard automobile parking space only for the purpose of complying with any applicable minimum parking space requirements established by an enforcement agency. See Vehicle Code Section 22511.2 for further details.

5.106.5.3.2 Electric vehicle charging stations (EVCS). EV capable spaces shall be provided with electric vehicle supply equipment (EVSE) to create EVCS in the number indicated in Table 5.106.5.3.1. The EVCS required by Table 5.106.5.3.1 shall be provided with Level 2 EVSE or DCFC as permitted in Section 5.106.5.3.2.1. At least one Level 2 EVSE shall be provided.

One EV charger with multiple connectors capable of charging multiple EVs simultaneously shall be permitted if the electrical load capacity required by Section

5.106.5.3.1 for each EV capable space is accumulatively supplied to the EV charger.

5.106.5.3.2.1 Receptacle Configurations. [See Item 4c]

5.106.5.3.2.2 EV Charger Connectors. [See Item 4c]

5.106.5.3.2.4 3 The installation of each DCFC EVSE shall be permitted to reduce the minimum number of required EV capable spaces without EVSE or EVCS with Level 2 EVSE by five and reduce proportionally the required electrical load capacity to the service panel or subpanel.

5.106.5.3.2.2 4 The installation of two Low Power Level 2 EV charging receptacles shall be permitted to reduce the minimum number of required EV capable spaces without EVSE in Table 5.106.5.3.1 by one.

5.106.5.3.2.4.1 Raceway Capacity Requirements. To allow for future upgrades to the electrical conductors serving low power Level 2 charging receptacles, a listed raceway shall be provided with the capability of accommodating a dedicated 208/240-volt 40-ampere branch circuit.

5.106.5.3.3 Use of automatic load management systems (ALMS). ALMS shall be permitted...multiple EVs. [No change to text.]

5.106.5.3.4 Accessible electric vehicle charging station (EVCS). When EVSE is installed, accessible EVCS shall be provided in accordance with the California Building Code Chapter 11B Section 11B-228.3.

5.106.5.3.5 Electric vehicle charging station signage. Electric vehicle charging stations shall be identified by signage or pavement markings in compliance with Caltrans Traffic Operations Policy Directive 13-01 (Zero Emission Vehicle Signs and Pavement Markings) or its successor(s).

TABLE 5.106.5.3.1

TOTAL NUMBER OF ACTUAL PARKING SPACES	NUMBER OF REQUIRED EV CAPABLE SPACES	NUMBER OF EVCS (EV CAPABLE SPACES PROVIDED WITH EVSE) ^{2 & 3, 4}
0-9	0	0
10-25	4	0
26-50	8	2
51-75	13	3
76-100	17	4
101-150	25	6
151-200	35	9
201 and over	20 percent of actual parking spaces ¹	25 percent of EV capable spaces ¹

1. Calculation for spaces shall be rounded up to the nearest whole number.

2. The number of required EVCS (EV capable spaces provided with EVSE) in column 3 count toward the total number of required EV capable spaces shown in column 2.

3. At least one Level 2 EVSE shall be provided.

5.106.5.3.6 Electric vehicle charging stations (EVCS)-Power allocation method.

The Power allocation method may be used as an alternative to the requirements in Section 5.106.5.3.1, Section 5.106.5.3.2 and associated Table 5.106.5.3.1. Use Table 5.106.5.3.6 to determine the total power in kVA required based on the total number of actual parking spaces.

Power allocation method shall include the following:

1. Use any kVA combination of EV capable spaces, Low Power Level 2, Level 2 or DCFC EVSEs.
2. At least one Level 2 EVSE shall be provided.

TABLE 5.106.5.3.6

TOTAL NUMBER OF ACTUAL PARKING SPACES	MINIMUM TOTAL kVA @ 6.6 kVA	TOTAL kVA REQUIRED IN ANY COMBINATION OF EV CAPABLE ^{3,4} , LOW POWER LEVEL 2, LEVEL 2 ^{1, 2} , OR DCFC
0-9	0	0
10-25	26.4	26.4
26-50	52.8	52.8
51-75	85.8	85.8
76-100	112.2	112.2
101-150	165	165
151-200	231	231
201 and over	20 percent of actual parking spaces x 6.6	Total required kVA =P x .20 x 6.6 Where P=Parking spaces in facility

1. Level 2 EVSE @ 6.6 kVA minimum.
2. At least one Level 2 EVSE shall be provided.
3. Maximum allowed kVA to be utilized for EV capable spaces is 75 percent.
4. If EV capable spaces are utilized, they shall meet the requirements of Section 5.106.5.3.1 EV capable spaces.

5.106.5.3.6.1 Receptacle Configurations. [See Item 4c]

5.106.5.3.6.2 EV Charger Connectors. [See Item 4c]

5.106.5.3.6.3 Raceway Capacity Requirements. To allow for future upgrades to the electrical conductors serving low power Level 2 charging receptacles, a listed raceway shall be provided with the capability of accommodating a dedicated 208/240-volt 40-ampere branch circuit.